

U.S. Patent Application of:

Benjamin H. Watts

835 East Lower Springboro Rd.

Springboro, Ohio 45066

Citizen of the United States of America

Title Of Invention

Multi-purpose deer-hunting cart

Cross-Reference To Related Applications

This claims priority from United States Provisional Patent Application serial number 60/154,829 filed November 12, 1999 incorporated herein by reference in its entirety.

This relates to United States Disclosure Document Number 430471, filed January 29, 1998 incorporated herein by reference in its entirety.

Background of the Invention

This invention relates to new and useful improvements of hand operated utility carts and more particularly to a process for transporting hunting game and equipment. It relates to hunting carts used in transporting game from the hunting site.

The use of carts is known in the prior art. Carts have been utilized for the purpose of transporting items. By way of example the prior art disclosed in the U.S. Pat No. 5673928 to Jury a folding portable cart, U.S. Pat. No. 5295556 to Mullin a multipurpose hunting cart, US Pat. No. 5492196 to Michno a portable deer cart and tree stand, US Pat. No. 4045040 to Fails a deer stand and game carrier, US Pat. No. 5713497 to Ponczek a deer carrier, Design Pat. No. 391734 to Melgey a cart for transporting harvested deer and Design Pat No.5853189 to Swartzlander a cart.

Prior hunting carts have had many disadvantages. One major difficulty is that other hunting carts are too low to the ground. This results in dragging the cart, hanging up on ground obstructions, and requires excess strength for pulling the cart. Additionally previous deer carts have had the main body of the cart built between the wheels of the cart. This inhibits the loading of the deer onto the cart. The deer must be loaded carefully between the wheels and frequently moved to avoid rubbing by the wheels. Another difficulty has been load stability.

Specifically regarding Design Pat. No. 5853189 discloses a collapsible, two-tier cart with a 'T' bar handle assembly. In order to keep the load from obstructing the wheels, this patent had to incorporate a two level design. This has resulted in excess weight designed into the cart. The straight 'T' bar design of the handle assembly places the load at an angle when transporting in a hand operated mode. This design results in the main body of the cart being on an incline causing the load to be off balance and making it difficult to maneuver. This incline also makes it difficult to operator the cart in a push mode. In this design, the placement of the wheels on the outside of the main carrying deck results in the need for a wider cart to transport similar size loads.

Previous designs have had many flaws. The principle object of this invention is to provide a cart that provides easy maneuverability in both a pushing and pulling direction while maximizing load area and provides load stability through the use of an extended handle assembly.

Summary of the Invention

The primary object of the invention is to provide a machine that allows for weight and balance stability. A further object of the invention is to provide a machine with an extended handle assembly allowing for full walking stride without striking foot heels against cart. Other objectives of the invention are to provide a machine as narrow as possible for maneuverability without sacrificing

stability, that reduces back strain potential, that allows comfort in pulling, that easily operates in a push or pull mode, that has clearance to overcome ground obstructions, that is quiet while being used, that assembles in minutes, that allows for easy loading/unloading, that breaks down for storage and transportation purposes.

Another object of the invention is to allow for the load to be level during operation, allow for easy break down by one person, to allow for one or two man operation.

Other objects and advantages of the present invention will become apparent from the following descriptions, taken in connection with the accompanying drawings, wherein, by way of illustration and example, an embodiment of the present invention is disclosed.

In light of the above mentioned shortcomings of the known prior arts, the present invention was developed. The invention is a hand operated utility cart which includes an extended handle assembly capable of supporting extra long loads, a primary platform and a modified bicycle fork assembly.

The cart includes a single platform mounted on top of two independent front bicycle fork assemblies. An extended handle assembly includes a long rectangular member, a bicycle handle bar with stem, an extended kickstand and a hand lock breaking system secured to the platform.

For a better understanding of the invention, its operating advantages and specific objectives of its uses, reference should be made to the accompanying drawings along with its descriptive matter in which there is illustrated embodiments of the invention.

The drawings constitute a part of this specification and include exemplary embodiments to the invention, which may be embodied in various forms. It is to

be understood that in some instances various aspects of the invention may be shown exaggerated or enlarged to facilitate an understanding of the invention.

Brief Description of the Drawings

Figure 1 is a perspective view of an embodiment of the present invention.

Figure 2 is a plan front view of the embodiment of Fig. 1.

Figure 3 is a plan rear view of the embodiment of Fig. 1.

Figure 4 and Figure 5 is a plan side view of the embodiment of Fig. 1.

Figure 6 is a plan top view of the embodiment of Fig. 1.

Figure 7 is a plan bottom view of the embodiment of Fig. 1.

Figure 8 is a schematic transverse cross-section of a platform of a second embodiment of the present invention.

Figure 9 is a schematic longitudinal cross-section of the platform of the embodiment of Fig. 8.

Figure 10 is a schematic transverse cross-section of a platform of a third embodiment of the present invention.

Figure 11 is a schematic longitudinal cross-section of the platform of the embodiment of Fig. 8.

Detailed Description of the Preferred Embodiments

Detailed descriptions of the preferred embodiment are provided herein. It is to be understood, however, that the present invention may be embodied in various forms. Therefore, specific details disclosed herein are not to be interpreted as limiting, but rather as a basis for the claims and as a representative basis for teaching one skilled in the art to employ the present invention in virtually any appropriately detailed system, structure or manner.

Turning first to Figure 1 in which like reference numbers indicate like elements, there is shown an exploded view of a cart 1 of the present invention. The cart includes a single platform 3, two independent front bicycle fork assemblies 5 and an extended handle assembly 7.

The platform 3 is typically about 1 to about 2 1/2 feet above the ground, preferable about 1 1/2 to about 2 feet above the ground. The platform width is typically about 20 to 36 inches and its length is about 2 to about 5 feet preferably about 30 to about 52 inches.

The platform 3 includes two 3/4 inch box tubes which are 36 inches long 2,4, six 3/4 inch box tubes which are 24 inches long 6,8,10,12,14,16 and three 3/4 inch box tubes which are 12 inches long 18,20,22. These items are joined by a rigid immobile relationship by welding. Overall dimensions of the platform 3 are 25 1/2 inches by 36 inches but are not limited to this size. Two holes are drilled through each member 2,4 1 3/8 inches from each side of center and two holes are also drilled through members 18 and 22 about 1 3/8 inches from each side of center. Two 1 inch by 1 inch angle irons which are 12 inches long 24,26 are also welded to the bottom side of the main platform members 12, 14 and 16 about 1 inch on each side of center.

The platform 3 is shown as having a flat planar upper surface and a flat planar lower surface. However, in a second embodiment 200, the bars can be curved to form an upper surface having a concave cross-section in the transverse direction (Figure 8) and a straight cross-section in the longitudinal direction (Figure 9). In a third embodiment 300, the bars can be curved to form an upper surface having a concave cross section in both the transverse direction (Figure 10) and longitudinal direction (Figure 11). If desired the bars can be curved to form an upper surface having a straight cross-section in the transverse direction and concave cross-section in the longitudinal direction (not shown).

In accordance with the present invention, Figure 1 shows two bicycle fork assemblies **5** secured with members **32,34,36,38**, which are typically 4 inch carriage bolts secured to the main platform. Each individual fork assembly **5** includes fork mounts **28,30** which are 3 1/4 inches by 2 inches by 5/8 inch flat stock steel with a 1 inch hole through its center and two 1/4 inch holes through its sides which are perpendicular to the 1 inch center hole and each about 1 3/8 inches from center. The distance between each fork mount **28,30**, and a respective bolt securing a brake to the fork assembly **5** is typically a minimum of 2 1/2 inches. This will insure for proper clearance of the brake cable. The fork mount **28,30** is joined to the bicycle forks, **40,42** by a rigid immobile relationship by welding. Bicycle forks **40,42** are 20 inch front bicycle forks but are not restricted to that size.

The wheel supports shown by Figure 1 are U-shaped forks, and there are no elements of the cart between the wheel supports in a space of from ground level to a height of at least about 50% of the height of the platform lower plane above the ground level. Preferably, there are no elements of the cart between the wheel supports in a space of from ground level to a height of at least about 75% of the height of the platform lower plane above the ground level

In accordance with an important feature of the present invention, there is shown in Figure 1, wheels **44,46** which are 20 inch wheels secured to the forks using a quick release skewer **74,76**. The wheel size is based upon the fork size used in the present invention.

To accomplish an important function of the invention, there is shown in Figure 1, members **48,50** which are each an ATB Caliber Brake Set secured to each fork assembly **5** by means of a 2 3/4 inch bolt **51** (Fig.2) having a 1/4 20 thread and a 1/4 20 nut **53** (Fig.3).

Turning to Figure 7 brake cable steady mounts **60,62** each with a threaded hole, are permanently welded to members **24** and **26** at approximately a 30 degree angle about 10 inches from the front bar **16** of the platform **3**. A brake cable **100** extends from one brake set **48** (Figure 1) through the two steady mounts, **60,62**, to a second brake set **50** (Figure 1). Secured to the brake cable **100** between the steady mounts **60,62** is a yoke hanger mount **98**. A second brake cable **102**, which is secured to a yoke hanger mount **98** at the side nearest the platform **3**, runs through a third steady mount **64** and is then attached to a locking hand brake **58**.

In accordance with an important feature of the present invention, there is shown in Figure 7 the extended handle assembly **7**. The primary piece is a 2 inch by 1 inch by 36 inch longitudinally arranged steel box tubing **52**. Two 5/16-inch holes, which go entirely transversely through longitudinal tubing **52**, are located about 1/2 inch and about 11 1/2 inches from the front base **16** of the platform **3** and are for securing the assembly to the angle iron members **24,26**. A third hole which is about 3/8 inches in diameter, goes through steel box tubing **52** and is located about 6 inches from the transverse handle bar stem assembly **56**. This third hole is used to secure the kickstand **54** to the extended handle bar assembly **7** by means of a 2 1/2-inch bolt, having a 3/8 inch 16 thread, and a 3/8 inch 16 nut. A smaller secondary screw is threaded through the kickstand mount into main tubing **52** and is used to eliminate twisting and turning of the kickstand. A final 5/16 inch hole is drilled into tubing **52**, and member **96** (Figure 7), a 1 inch by 6 inch steel tube, which has been welded into the inner diameter of longitudinal tubing **52**. A 1/4 inch 20-flange nut **94** is welded to tubing **52** with its center lining up with that of the final 5/16-inch hole as described above. A 1 inch long 1/4 inch 20 threaded eye bolt **92** is then screwed into the flag nut **94** located on tubing **52**. Eyebolt **92** penetrates through nut **94**, tubing **52**

and tube **96** and finally the stem of the bicycle handle bar assembly **56**. This helps to prevent the possible twisting of the bicycle handlebar assembly **56**. Eyebolt **92** can also be used to fasten a load that extends beyond the front of the platform to the bicycle handlebar assembly **56**.

Typically, the tubing **52** extends 2 to 3 1/2 feet from the platform and the transverse handlebar stem assembly **56** has a U-shaped portion **57** and handle portions extending from the U-shaped portion having handles **88,90** and the locking hand brake **58** mounted on the handle portions. Also typically the transverse handle bar stem assembly **56** extends a distance "D" of about 5 to about 12, preferably about 6 to about 8 inches, above the longitudinal axis of the longitudinal tubing **52** (see Figure 5). Handlebar assembly has a width "T" typically about 12 to about 30 inches.

Still in Figure 7 there is a 1 inch by 2 inch by 1/8 inch flat stock steel plate, member **104**, with a 1 inch hole drilled through the center that is welded to the end of tubing **52** at the end nearest the handle bar assembly **56**. The stem of the bicycle handlebar assembly **56** slides through the hole of member **104** and into the 1 inch steel tubing **96**. The bicycle handlebar assembly **56** is secured to tubing **52** with an expander bolt and wedge.

Turning now to Figure 5, the final piece shows a small piece of round stock member **110** 1/2 inch length 1/4 inch diameter, welded to the kick stand mount to prevent the kick stand from going past perpendicular when in use.

While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.